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ABSTRACT

Since the restructuring of education in New Zealand in 1989, a new curriculum framework has been developed. This framework emphasizes the thinking, problem-solving, and group skills processes. This paper traces the growth of a strategic approach to teaching and learning in New Zealand, with a focus on cooperative learning. It describes findings of a study that designed and assessed a staff development program implemented in two secondary New Zealand schools. Data were obtained from on-site observations, teacher and student questionnaires, and principal interviews. The program model was participant-driven, in which teachers chose teaching strategies and controlled the pace and development. A significant outcome was an almost total teacher commitment to cooperative learning. Teachers and students moved from an individualistic, competitive goal orientation to a collaborative and supportive one. This is noteworthy because New Zealand schools are particularly competitive; at the sixth form, students compete for a preset number of grades. Any assistance they give their peers could potentially reduce their own grades. Students did, however, use the groups to enhance their individual performances, as well as to teach cooperative skills and encode new learning material. Future plans to implement the program within clusters of neighboring schools are described. Contains 23 references. (LMI)

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CHANGING HIGH SCHOOLS

Don Brown & Charlotte Thomson Wellington New Zealand July 1994

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A paper presented to the 8th International Conference of the International Association for the Study of Cooperation in Education

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BACKGROUND

Since the restructuring of education in New Zealand in 1989, a new curriculum framework has been developed. This framework is consistent with international developments which have placed a greater emphasis than previously upon the processes of thinking, problem solving and group skills. For the primary (elementary) education service these developments have served to accentuate the child centred approach which is probably best known internationally for its success in early reading processes.

For the secondary school sector, however, these changes have demanded a radical rethinking of both curriculum delivery and organisation for learning. The initial emphasis is upon changing styles of teaching but it is inevitable that the organisation of secondary schools will face serious challenges if the curriculum framework is to be effected.

A further challenge for New Zealand high schools is the presence in mainstream classes of all students who in the United States would be categorised as learning disabled. Indeed, with the advent of mainstreaming, many New Zealand schools now include all students with intellectual and physical disabilities except those very few whose level of disability is profound. This is a challenge similar in scope and importance to the regular education initiative (REI).

The developments we wish to report here trace the growth of a "strategic" approach to teaching and learning with co-operative learning as its lynch pin. The work began in two secondary schools where the staff and boards of trustees agreed to try a staff development programme. In New Zealand every school is an independent administrative entity managed by a board of parents with staff and student representatives.

The programme was designed to equip the teachers to meet the challenges of the new curricula. It would also enable students to acquire learning strategies as well as the essential skills outlined in the curriculum framework, at the same time teachers were learning new teaching strategies.

This first section of the programme took the form of a research project supported by the Ministry of Education. The two schools were selected as a result of interest expressed by the principals' (management) group in each school. The data we shall present in this paper derives largely from this research.

In this section of the programme, each school was visited for one day per week by the first author. During this day, team meetings were held and classroom observations were conducted at the request of the teachers. An advisory committee of teachers, parents, university colleagues and officers of the ministry met to consider the programme and recommend further developments.

From this research there evolved a recognition of the need for more structured seminar activity. While the team meetings and class observations had been found to be valued by the teachers, the opportunity to make explicit the management of curriculum delivery required more seminar time.

The second section of our work followed from this research. Two major colleges of education contracted the first author to establish staff development programmes for experienced secondary teachers in their catchment areas. The second author began developing similar programmes for primary and intermediate schools.

Two different styles of delivery for secondary teachers were developed. At one college the programme took the form of 100 hours of seminar work with weekly journals and set assignments. At the other college a 36 hour seminar programme was developed with on site support visits. These different delivery

systems were finally modified to produce a programme consisting of 78 hours of seminar work with frequent site visits and team meetings of teachers in clusters of three neighbouring schools. This made up a total of 100 hours of training for each teacher.

At this point we were ready to enlarge the number of people skilled enough to assist their colleagues in spreading the development programme across a larger number of schools. The two college of education programmes, together with some high schools which had independently sought our assistance, had produced over 250 teachers across central new Zealand who knew our programmes. This number of teachers was sufficient for us to consider ways in which the programmed could be broadened.

Over 250 teachers across central New Zealand now know our programmes. Some will receive intensive on site training for one year.

Later this year we shall begin work on a new project funded by the Ministry of Education to train trainers in our work. These will be teachers drawn from the graduates of the existing programmes who will receive intensive on site training for one year. These teachers will then form a pool of well trained co-ordinators able to function in a collaborative consulting model in the development of co-operative and strategic learning programmes.

RESEARCH MODEL

The evidence is that changing teacher behaviour is a complex task. Welch (1979) notes how stable the educational system is and how little effect have efforts to change it had. Thelen (1954) said: "Teaching is what the teacher does. To change teaching means that the teacher himself (sic) must, in some respects at least,change. And only the teacher can change the teacher." (p. 73) Beeby (1986), one of New Zealand's most noted educators makes the point that no educational reform will succeed unless teachers believe in it. For this reason an empowering model was adopted which put teachers as much in control of the changes as possible.

The research model for the first part of this project was described by the external reviewer for the ministry as a participant driven, empowering one in which the distance between the researcher and the teachers involved was kept to a minimum. Control and power over the research questions and the methodology was shared between participants and the researcher. This increased the probability that the data gathered were ecologically valid and clearly "owned" by the participants (Glynn, 1992).

Teachers were volunteers and could choose from a menu of teaching strategies. The teachers controlled the pace and the development of the programme while the consultant/researcher supported and encouraged their further development.

Together the teachers and the consultant/researcher were developing a dual curriculum approach - teaching curriculum content while developing in their students, skills in selecting and using learning strategies to suit their current learning needs. At the same time the teachers were mastering the skills of "strategic" curriculum delivery.

Fullan and Newton (1989) point out: "The role of vice principals and department heads in change has been neglected both in theory and in practice." (p. 419). Taking note of this, the school management teams consisting of principal, deputy principal and assistant principal were included and involved from the beginning.

The formative method adopted in this study and the attempt to ensure a balance between "bottom up" and "top down" approaches were designed to optimise the inclusion of teachers and their sense of ownership as they developed teaching styles new to them, with support from thier management team (for a discussion of this need for balance see Fullan, 1994).

STRATEGIES DEFINED

The terms "strategies" and "strategic" have been used in a number of ways. Fundamentally, strategic teaching encompasses the complex thinking processes and methods of curriculum delivery which enable all kinds of students to become successful learners. This includes teaching methods which make content meaningful, integrated with prior learning and transferable. It also includes teaching techniques which assist students to become

aware of the use of learning strategies. Students learn to know how to select and apply these strategies in a fashion appropriate to the task demands and their need to retain and recall information at appropriate moments.

Strategic teaching also includes the creation of a safe environment for learning. This is an environment where the interaction patterns, student to student and teacher to student, actively support careful thinking, risk taking and mutual encouragement and support.

Seven months into the programme 92% of teachers involved were actively practising co-operative learning in at least one of their classes.

The establishment of a co-operative environment was seen as most likely to create these conditions but the decision to do so was in the hands of the teachers themselves. It was their choice to use co-operative teaching methods.

The programme drew heavily on the the broad literature of co-operative learning (Johnson & Johnson, 1989, Graves & Graves, 1990) learning strategies developed at the Kansas University Institute for Learning Disabilities (Schumaker & Deshler 1988, Bulgren, Schumaker & Deshler 1988, Lenz, Alley & Schumaker 1987) effective schools (Brophy, 1986,Ysseldyke, Christenson & Thurlow, 1988) thinking skills (Dalton, 1985, Lockhead, 1985, Nickerson, Perkins & Smith, 1985, Fogarty & Bellanca, 1989,Glaser, 1990, Bellanca, Fogarty & Dalton, 1991, and see Brandt, 1989 & Costa, 1991)and quality schools (Glasser, 1990).

STRATEGY USE

A wide range of strategies were selected by the teachers. Since each strategic approach took some time to establish and teachers needed time to consider any applications to their classes, some time elapsed before a clear pattern of change emerged. The most obvious development however was the adoption of co-operative learning as a preferred style. Seven months into the programme, 92% (24 of 26) of the teachers involved in the programme were actively practising co-operative learning in at least one (and frequently all) of their classes.

Among other strategies teachers used in this period were advance organisers, the systematic use of graphic transformations for thinking skills, teacher modelling of problem solving methods, writing and paraphrasing strategies, operant learning skills and test and exam taking strategies including visualisation, cognitive behaviour modification and in vivo practice.

In setting the pace for strategy use, teachers were very much their own managers. Thus, some teachers developed more than one strategy at a time while others concentrated upon one methodology before trying another. This brought some interesting insights for the teachers. For example, one who began working on co-operative groups also began teaching the use of graphic transformations. It proved too difficult to mix the strategies and the teacher recognised it. Here are her comments:

"I have tried group tactics before with this class in a limited way with limited success. I hope to get a more positive outcome by tighter controls over what I'm focusing on and on my group activity and selection. The class has a full range of ability with low achievers and high achievers with motivation problems."

Three weeks later, after starting to build co-operative skills and the transformation strategies, she had this to say:

"Today ... I did not go over all the key co-operative group rules, etc, to see how they handled it. They did not click back into it at all. In fact they just worked as a normal group without the co-operative elements ... unlike last time, individuals were finishing way ahead of others while slower students struggled with the material ... some students went off task quickly ... I had to re-explain my instructions several times. This was a revealing exercise and I found it very useful as a comparison."

Later the same teacher commented:

"I feel the class is trending more as a working group. I am enjoying my time with them as there seems to be an increase in motivation. Ninety percent of those asked gave the correct response on either the first

or second prompting."

These remarks reflect the quality of teacher input and control over their work. Teachers were not following a strict training programme but developing their own skills in weekly exchanges with the first author.

TEACHER COMMENT

"One of the calmest years in social management"

School principal

There was a broad spectrum of comment which indicated thoughtful application and a high level of satisfaction with the programme. For example:

"One of the calmest years in social management." - School principal

"I have far more specific objectives for each lesson I can define my outcomes and measure them." - Class teacher

"I am now more likely to provide the class with goals objectives." - Class teacher

"I now know where I am going - the kids as well as the teacher." - Class teacher

"I found this term very frustrating ... (with) the introduction of co-operative learning and advance organisers to my third form (8th grade) classes. I have grown in understanding these two concepts, (though) and over the last four or five weeks have started to introduce them into many classes. There has been noticeable success in all those classes. In one, a subject most suited to this approach, students have been more able to lift their work rate and their achievement has improved in nearly every case." - Class teacher

"My involvement with this project has been my most valuable training as a teacher, including teachers' college." - Class teacher

TEACHER BELIEFS

A number of questions were asked of teachers in a teacher questionnaire. There were two apparently significant changes in teacher beliefs. The first of these was a reduction in attribution to family and peer influence for academic failure and an increase in attribution for such failure to poor teaching strategies, lack of student skill and poor learning strategies. These attributions did not relate to programme effects but were generic beliefs about teaching and learning.

The second issue where a great deal of change occurred was in the perception of what is successful teaching. In this case ability to motivate students and to manage classrooms replaced an emphasis upon relationships. An interesting concomitant finding showed an increase in emphasis among the programme teachers upon teacher/student relationships. The consultant noted anecdotally an increase in indicators of good teacher/student interactions.

The most likely explanation of this latter finding is a greater awareness among the teachers of the importance of an enhanced strategic classroom environment. This awareness probably overlaid an observable (but perhaps not consciously realised) increase in teacher/student relationships.

As a point of interest, the principals' group was asked the same question. They responded quite differently, claiming there was an increase in attention paid to relationships.

ACHIEVEMENT GAINS

Informal class measures were taken which indicated at times quite marked gains in academic achievement. Details of these results are included in the research report (Brown, 1992).

STUDENT COMMENT

Student comments were recorded by teachers during the course of the programme. Teachers gathered together a large number of student reflection sheets from their co-operative learning activities. In reflecting on their work about half way through the programme one group of fifth formers (Grade 10) said:

"We must listen to instructions, work should be done as a group not split up, so that everyone understands what is happening."

This group made a further remark which is recorded for posterity

"Our group never wants to be apart as we would surely die."

Some of the other comments were

"You get started straight away, work together as a group a lot better. The work has to be more clearly defined for each person."

"I find the groups are really good because not only do you get to know each other but when we find difficulties in some work, we can always ask our group to give us some help and understanding."

"I think I tried harder with the group to help me and encourage me all the way. The group was mostly always wanting to help each other."

In the New Zealand sixth form students compete for a preset number of grades. Any assistance they give their peers could potentially reduce their own grades.

On completion of the programme, students were asked a series of questions about the use of strategies in their classrooms. Details are given below but a number of comments on co-operative group work were received. A sample is included here.

"It was good hearing different opinions. Every person's opinion allows you to look at the task with a different perspective." - Fifth former.

"There are twice as many brains being used" - Fourth former

"The skilled person helps others to learn ways of obtaining higher grades if we wanted to earn them." - Fifth former

"The higher ones learned to explain and realise what they are doing, and lower learned techniques." - Fifth former.

"Being able to get other people's ideas and then talking about the different ones. Changing them about to get a conclusion that suited all." - Sixth former

"Sometimes you had to cover for a group member when they were upset or something but they would do the same for me." - Fifth former.

"I increased my marks by 29% by being taught how to write essays by a group member." - Fifth former

It must be remembered that the New Zealand secondary school is a highly competitive institution. At the sixth form, students compete for a pre-set number of grades. Students know that any assistance they give their peers could potentially reduce their own grades.

STUDENT QUESTIONNAIRES

Three hundred and eighty students were included in an anonymous questionnaire survey of student views of the programme. Included in the survey were a number of questions on co-operative learning.

The first of these questions asked students if they gave or received help and if they took responsibility for group results. Over half the students said they tried to help their group members, more than two thirds said they received help and close to two thirds said they did take responsibility for the group's learning.

The second question asked if they would like to work in groups or pairs in a subsequent year. The question was framed this way to avoid feelings of loyalty to their current teachers. Over eighty percent of the students responded in the affirmative.

The students were asked what they liked about cooperative groups. A range of answers were given and these were ranked. The three most common responses for the total student group were sharing ideas, working together and enhanced learning. The responses of 6th and 7th form students were separated out from those of the more junior students for two reasons. The first was that many teachers unfamiliar with co-operative learning are doubtful if senior students will accept it. The other reason is the highly competitive nature of the senior forms which give entry to university.

These senior students listed sharing ideas, opportunities for discussion and working together as their three most highly ranked reasons.

Eightyfive percent of 6th and 7th formers firmly believed co-operative learning had helped them to learn. A further 11% felt it had been some help. Only 1% of this group preferred individual work to co-operative groups.

Students were asked what they liked least about co-operative groups. The most frequent response was the word "Nothing". The second was a range of statements which reflected student inability to manage skilfully many of the issues and events that emerge in co-operative groups. The third was non contributors. It is interesting that the two disadvantages noted above are entirely manageable by teachers who have developed skills in co-operative group work. A further point of interest is that the sixth most frequent response was that no answer was given to this question. This and one other similar question noted below were the only questions in which such an event occurred.

Students were asked if they thought co-operative learning helped them to learn. In one school 64% and in the other 75% of students answered in the affirmative. Eighty five per cent of the 6th and 7th formers firmly believed they had been helped.

They were then asked why they thought co-operative learning helped them to learn. The three highest ranked responses were that it broadened ideas and approaches, it improved their work and that help was available within the group.

When asked what factors might have meant co-operative group work hindered learning only 33 students responded. It is difficult to know what to take from such a low response (only one out of 67 6th and 7th formers responded to this question - only one had previously said that co-operative learning had not helped them to learn). Nonetheless the following reasons were recorded: the most often cited reason was a preference for individual work, the second was off task behaviour from some individuals in the groups and the third was non participation from some group members.

Again, with the exception of the personal preference to work alone, the remaining reasons are remediable.

There was an interesting division of opinion from students on teacher selection of groups. More students felt it was better for teachers to allocate to groups than for students to do so (average 38% in favour and 25% against) but many were indifferent on the matter.

Of special interest was the preference of the 6th and 7th formers for heterogeneous groups. This was their top ranked response with fairness of allocation being the second.

The overall advantages given for teacher allocation were, a better working environment, group heterogeneity, fairness in allocation, more efficient management and inclusion of all. The students cited homogeneity of groups, effects of non participants and a kind of generalised dislike of teacher selection as their reasons for preferring student control of group allocation. It is interesting to note though that the second highest ranked comment category in favour of student selection was a grudging recognition that student selection may not be best, merely being preferred.

PRINCIPAL COMMENT

Each of the three members of the principals' group (principal, deputy principal, assistant principal) in the two schools were interviewed before and after the programme. Their responses were tape recorded and each also completed a questionnaire.

Because the involvement of the principals was regarded as an essential feature in change, it was important that they played a role in the change process and that their views were taken fully into account. Some of the questions asked of the principals were identical to those asked teachers while some targeted issues of relevance only to the principals' group. The following comments are those which showed the highest level of responding from the group.

One interesting factor was that only one of the six members of the group actively tried to recruit teachers to the programme. The others relied on the attraction of the programme itself to engage teachers in it. Since about 25% of the staff at the two schools joined the programme (it is unlikely a consultant could have dealt with more at the one time) this is an interesting result. Linked to this is the fact that while all six principals saw themselves in a leadership role at the beginning of the

programme only half saw the need for this at the end of the period

An indication of the importance of this finding is found in the responses to another question. The group was asked if collegial management of the programme was possible and desirable at the beginning of the work and again at the end. All six responded affirmatively on both occasions. At the beginning, five said they thought the model would demand a co-operative approach between principals and staff and all six attested to this at the end

For many teachers co-operative learning formed the basis of a changed pattern of activity. The groups proved an ideal platform for the introduction of a wide range of strategies.

In a question probing the events and factors which occurred as the programme developed, two thirds of the group noted the enthusiasm, sense of achievement and sense of ownership the teachers had felt as the programme proceeded. What is more, the positive staff reaction in both schools was seen by the principals as a strong source of support for themselves

Two factors emerged with respect to the management, organisation and delivery of the programme. By and large the principals felt the addition of the programme was not a source of pressure for them. Three of the six predicted it would not be and five affirmed this at the post programme interview. They added though that the presence of an outside consultant was an important factor in the success of the programme making it clear that a consultant must have credibility in the school. To this they added the support gained from staff

Benefits to the school were seen in a more positive focus on learning and achieving, increased commitment from staff, improved individual student achievement and community acknowledgement of success

Perhaps most important was the emphasis on future planning. While two thirds of the group felt that no substantial changes needed to be made to the way the programme was run for the school to maintain the programme in the following year, half felt they would need to increase further their own involvement (which was already substantial). Two thirds of the group planned to alter administrative procedures to support the programme in subsequent years and the same number saw the importance of future planning

To effect this development, both schools set up planning procedures and one a planning committee to recruit more teachers to their teams and to ensure collegial support in the coming year

CONCLUSION

A significant development in the research programme was an almost total commitment by the teachers involved to co-operative learning programmes. This achieved what Deshler and Lenz (1989) advocate "strategically rich instruction in an environment which promotes team-work and shared responsibility for the learning and performance of all students" (p. 222)

For many teachers co-operative learning formed the basis of a changed pattern of activity. The groups proved an ideal platform for the introduction of a wide range of strategies. The change in goal orientation from individualistic and competitive to collaborative and supportive provided the conditions in which developing strategies could be practised. Besides this, students and teachers alike welcomed the opportunity to share, discuss and assist each other. It should be noted however that the groups were used to enhance individual performance no less than to teach co-operative skills and encode new learning material

At the end of the research phase of the developments we are reporting, we could see the foundation for a change process which involved teachers, principals and school boards in a collaborative team. What we were not so sure of was the emphasis that needed to be placed on collaborative consultation with staff, support in the classroom, seminar delivery of information and changes in organisational structure

Since completing this first phase we have explored combinations of collaborative work with high schools. These have included seminar only, seminar and on site support and long and short term programmes. Each has contributed to our understanding of what works well

The next phase of our work will begin in December of this year, the end of the school year in the southern hemisphere. In this phase we intend to combine the elements outlined above in a programme to be funded by the Ministry of Education.

In this phase we shall work with clusters of neighbouring schools. Some clusters will be high schools only, some will be primary and intermediate only and some will combine primary, intermediate and secondary schools in the clusters. Schools will be recruited into the clusters on the basis of their interest in pursuing long term staff development programmes which will involve the principals themselves (or members of the principals' group in larger schools).

No reform of teaching will work without the support, indeed the enthusiasm and commitment of management. Equally, teachers determine the success or failure of curriculum reform...For these reasons we include principals and teachers in the change process as direct players.

In each school a graduate of our existing programmes will be given the opportunity to develop the skills of collaborative consultation and to further their skills in co-operative learning and establishing strategic classrooms. This teacher, supported by the principal will become the co-ordinator of a staff development programme for colleagues. Each co-ordinator will be supported for a full year by the authors. We shall convene seminars throughout the year, make regular visits to the schools to model and guide the teachers through the establishment of co-operative teams of colleagues.

On completion of the programme, the co-ordinators will be registered with the Ministry of Education as key people able to support colleagues in further staff development programmes planned by the ministry.

This takes us full circle, if you like. The new curricula being introduced into New Zealand schools demand teaching and learning strategies already being developed in our programmes. Not only do these programmes assist teachers to meet these demands, they create a pool of teachers capable of supporting further, colleagues who, in their turn, wish to develop these skills.

It is our view that changing high schools from a factory model to one based upon thinking skills and collaborative team-work is not a process that can be achieved easily or quickly. It is essential that the conditions are in place for change and the new curricula go a long way to establishing those conditions.

A further requirement is that teachers must have the confidence to try new methods and the assurance that they will be successful in academic as well as organisational terms. One of the best ways to achieve this is to create a cadre of peer models who are skilled in co-operative and strategic teaching skills, a group who can confidently demonstrate to their colleagues and support them through the change process.

No reform of teaching will work without the support, indeed the enthusiasm and commitment of management. Equally teachers determine the success or failure of curriculum reform for without their co-operation no change process can succeed. For these reasons we include principals and teachers in the change process as direct players.

There is much still to be done and the way we have approached the task is only one of many possible paths to progress. Our intention has been to create a team which is inclusive of teachers, managers and governors (not to mention students). Nobody is seen or promoted as more important than another. To invoke a saying in our country which is of Maori origin, "we each bring to the table our "kit" of knowledge, a contribution to be shared among us."

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